Foucault Studies

ISSN: 1832-5203
Foucault Studies, No. 21, pp. 159-183, June 2016

ARTICLE

The Nineteenth Century in Ruins: A Genealogy of French Historical Epistemology

David M. Peña-Guzmán, Laurentian University

ABSTRACT: This article investigates the historical and philosophical background of the French tradition of historical epistemology. As a sort of 'historical epistemology of historical epistemology,' it traces some of the forces, incidents, and events that made possible (and perhaps even necessary) the emergence of a new way of doing epistemology in the first half of the twentieth century in France. Three developments that occupy a position privilege in this narrative are: (i) the collapse of German idealism, (ii) the birth of French positivism, and (iii) what the author calls 'the crisis in the theory of science' that swept over Europe in the early 1900s. These developments suggest that the emergence and development of historical epistemology was the effect of changes *internal* to the history of Western philosophy (from Kant to Comte) as much as a function of changes *external* to this history (including changes in the material fabric of society).

Keywords: French philosophy, epistemology, history, German idealism, French positivism

> The "philosophy of the concept" was historically tied to the French tradition, ultimately traceable to Comte, of the history and philosophy of science. In the latter half of the twentieth century, this tradition was primarily represented by Gaston Bachelard and his successor as director of the Sorbonne's *Institut d'Histoire des Sciences et des Techniques*, Georges Canguilhem. Although the work of Bachelard and Canguilhem was scarcely known outside France, where French philosophy was simply identified with existential phenomenology, they were major influences on several generations of French philosophy students and their "philosophy of the concept" remained a significant alternative to existential philosophy.
>
> Gary Gutting, *French Philosophy in the Twentieth Century*[1]

Introduction

It is generally agreed by scholars that the French school of 'historical epistemology' first appeared in the years leading up to the rise of the Vichy regime, during the tumultuous decades of the

[1] Gary Gutting, *French Philosophy on The Twentieth Century* (Cambridge, MA: Cambridge University Press, 2001), 228.

1930s and '40s, in that "most venerable abode of French science:"[2] the Sorbonne. In *The Adventure of French Philosophy* (2012), Alain Badiou traces its origins to the second and third decades of the twentieth century and, more specifically, to the tension between 'two contrasting currents' that came to dominate French thought "on the eve of the Great War": "the philosophy of vital interiority" founded in 1911 by Henri Bergson and the "philosophy of the mathematically-based concept" formulated by Léon Brunschvicg in 1912.[3] Meanwhile, Michel Foucault—himself a product of this tradition—suggests that, while the forces responsible for its appearance harken back to the nineteenth century, a critical event in the historical development of this tradition was the deliverance, in 1929, of Husserl's famous Paris Lectures on transcendental phenomenology at the Descartes Amphitheater of the Sorbonne. These lectures introduced a whole generation of French thinkers (including Emmanuel Levinas, Jean Cavaillès, Alexandre Koyré and Maurice Merleau-Ponty, all of whom were in attendance) to the power of the phenomenological method, leading to two 'heterogeneous' uptakes of Husserlianism in France: one embodied by the existentialist writings of Sartre, Merleau-Ponty, and Levinas (the philosophers of the subject) and one embodied by the epistemological works of Bachelard and Canguilhem (the philosophers of the concept).[4]

Curiously, the question that neither Badiou nor Foucault address in detail in their respective genealogies of historical epistemology is, perhaps, the one that matters most from a historico-epistemological point of view—that is to say, the question of historical epistemology's own *historical conditions of emergence*. Why exactly did this mode of philosophical thought appear at this precise historical juncture in France? What questions, crises, and polemics preoccupied thinking and structured theoretical production on the European continent around this time-period such that the stage was set for the appearance of a fundamentally new way of doing epistemology? Against the backdrop of what intellectual geographies and problematics did this new discourse assert itself? And how should we conceptualize the forces, energies, and incidents that contributed, directly or indirectly, to its genesis? Or, to borrow a line from Foucault's "Nietzsche, Genealogy, History," what are "the myriad events through—thanks to which, against which—[it was] formed"?[5]

The narrative defended here maintains that the origins of historical epistemology—or, as some have called it, 'the philosophy of the concept'—should be sought in the long nineteenth century, especially in its second half. During the second half of the nineteenth century—let us say, roughly, sometime between Hegel's death in 1831 and Ricoeur's birth in 1913—a series of events erupt in Europe that bring about a drastic failure in philosophical reason. The three that stand out in this regard are: (i) the death of German idealism, (ii) the birth of French positivism, and (iii) the

[2] Edmund Husserl, *Cartesian Meditations: An Introduction to Phenomenology*, translated by Dorion Cairns (Leiden, Netherlands: Martinus Nijhoff Publishers, 1977), 1.

[3] Alain Badiou, *The Adventure of French Philosophy* (New York: Verso, 2012), lii-liii.

[4] Michel Foucault, "Preface," *The Normal and the Pathological* by Georges Canguilhem (New York, New York: Zone Books, 1989), 8.

[5] Michel Foucault, "Nietzsche, genealogy, history," *Semiotexte,* vol. 3 (1978), 81.

emancipation of science from philosophy that occurs on account of the transition from (i) to (ii). These events uproot philosophy (in its guise as epistemology) from its historical self-understanding as a normative discipline and call into question the traditionally normative character of its determinations. And, in so doing, they dissolve the fundamental 'right' that philosophy had historically arrogated for itself: the right to legislate, vis-à-vis a philosophical meta-language, universal norms for all rational thought.

When philosophy loses the right to lay down the norms that all cognitively meaningful processes (including science) are supposed to obey, two things happen. First, philosophy is dethroned as the queen of the sciences and left in a bereaved and derelict state in which it is reduced, as it were, to the consciousness of its own deposition. Thus, in the late nineteenth century philosophy becomes a radical problem onto itself, especially as its very legitimacy gets tied up in a question mark. Second, the epistemic status of scientific reason becomes somewhat ambiguous. By the end of the 1800s, scientific knowledge has proven to be both *normative* (in the sense that it generates its own concepts and norms without the guiding hand of philosophy) and *historical* (in the sense that undergoes upheavals and revolutions that alter, over the course of historical time, the form and content of its discourse). But by this time, philosophy has lost its normative function and science has been situated within the a-normative framework of the rising positivist dogma (which eschews the normative arsenal of 'old philosophy'). As a result, it becomes thoroughly unclear how the new historico-normative truths secreted by the sciences (physics, chemistry, biology, statistics, etc.) are to be justified, and also by whom. How can science, after all, be normative (and therefore necessitating) and historical (and therefore contingent) at one and the same time? What is the epistemic standing of scientific judgments that straddle the line between the normative and the historical? And who will spearhead the labor of justifying positive science's new historico-normative frame? What is or should be, in short, the proper relationship between *science*, *normativity*, and *history*?

This last question, I argue, becomes the leading predicament of thought in Europe at the start of the twentieth century. It is the *primal scene* (taking this term from Freud's writings) from which twentieth century philosophy is born and in relation to which it develops. Hence, it is in relation to it that most twentieth century philosophical discourses—from Austrian logical positivism to German neo-Kantianism to French historical epistemology—must be interpreted, understood, and evaluated. Indeed, it seems to be in relation to it that the vast majority of discourses born in the first fifty to sixty years of the 1900s interpret, understand, and evaluate *themselves*.[6] In what follows, I show that the writings of Cavaillès, Bachelard, Canguilhem and Foucault—which I take to be exemplary, though by no means exhaustive, of "historical epistemology"—emerge as a response to this primal scene, i.e., as a reaction to the crisis in scientific rationality and historical normativity that left nineteenth century philosophy in ruins

[6] While this article focuses exclusively on historical epistemology, in the near future I intend to pursue the theme of how this theoretical predicament lies at the origin of other twentieth century philosophical pedigrees.

and that would eventually set the stage for a series of new philosophical 'beginnings' following the end of WWI.

The Nineteenth Century In Ruins

In *Knowledge and Human Interests* (1968), Jürgen Habermas argues that the life of modern philosophy from Kant to Hegel hinges on the theory of knowledge. Modern philosophy consumes itself in the task of elaborating a theory of knowledge that satisfies three fundamental demands:

1. *The demand for comprehensive unity*. Against the ancient position that philosophy concerns itself solely with a specific kind of knowledge (knowledge of first principles), modern epistemology sets for itself the resplendent goal of explicating the formation and constitution of all possible knowledge (including knowledge accessed through pure, practical, and reflective judgment). In the modern period, all knowledge claims are treated as diverse elements that can, and must be, accommodated into a catholic theory of knowledge that leaves no cognitively meaningful sphere of life outside its dominion.

2. *The demand that scientific knowledge be included in philosophy's object-domain*. Although throughout much of the seventeenth, eighteenth, and some of the nineteenth centuries philosophy understands itself to be 'science,' it posits a fundamental difference between the knowledge it creates and the knowledge created by the positive sciences. More than simply marking the site of a dissimilitude, this difference marks the site of a bifurcation. Modern philosophy treats positive science (as much as morality, aesthetics and even politics) as provincial and derivative modes of reasoning that are explained and justified only by the logico-transcendental methods of philosophy itself. Philosophy is to science as *explanans* is to *explanandum*.

3. *The demand that philosophy be sovereign and legislative relative to its objects*. From Descartes to Kant to Hegel, the idea that philosophy commissions philosophical truths that cannot be refuted or contradicted by non-philosophical knowledge is prevalent. And so is the notion that non-philosophical disciplines receive these truths not actively (as equals in a bidirectional dialogue) but passively (as subordinates in a medieval adoubement). As the queen of the sciences, philosophy decrees norms to which the sciences can only conform and through which alone they (the sciences, that is) can exist.

Up until Hegel's time, therefore, modern philosophy essentially circular. It defends its right to be sovereign on the grounds that only philosophical reason can explain all of knowledge's manifestations, and it defends its claim that knowledge is one and that philosophy explains it on the grounds that knowledge can be unified through a normative meta-language that philosophy itself commissions.

This circularity is broken, however, in the late nineteenth century. The spirit of positive philosophy promulgated first by August Comte and later by Ernst Mach 'liquidates,' according to Habermas, epistemology as a theory of knowledge. In his *Introduction to Positive Philosophy*, Comte argues that knowledge reached via scientific principles of induction represents an 'advancement' over knowledge reached via theological and metaphysical postulates. Human reason reaches its highest formulation when the 'laws of phenomena' of positive science replace the 'supernatural agents' of theology and the 'abstract forces' of metaphysics, thus reaching the apex of human history. At this peak of historical and cognitive development, the human mind is capable of shedding the skin of non-positive thought (i.e. theology and metaphysics) and mastering the study of both *plurality* (by discovering different laws of nature) and *unity* (by extracting from the study of science itself a "unified law of all science"[7]). And it is this very shedding that, according to Comte, "gives the positive philosophy […] universal character."[8]

Unfortunately, this shedding has a curious effect. On the one hand, it leads philosophy to *slide back* under the fold of metaphysics since the infamous 'law of three stages' (theology → metaphysics → positivism) that anchors Comte's entire operation remains a function of a philosophy of history knee-deep in metaphysics. On the other hand, it also leads philosophy to leap over the requirements of a robust theory of knowledge. Under the weight of the spirit of positivism, philosophical discourse cedes the very right that, from 1781 to 1867 or so, it had majestically arrogated for itself with the help of transcendental inquiry—i.e., the right to act as an oasis of epistemic norms. Philosophical discourse, in other words, is displaced from its legislative and normative role and recast as what Habermas describes as a "pseudo-normative regulation of established research."[9]

Before positivism, the purpose of philosophical reason was clear: to attain the highest form of knowledge available to the human species. After it, philosophical reason is restricted to the menial function of describing, organizing, and systematizing the factual-empirical knowledge secreted by the sciences, which are now viewed as autonomous or semi-autonomous domains. In *Knowledge and Human Interests,* Habermas writes:

> Positivism marks the end of the theory of knowledge. In its place emerges the philosophy of science. Transcendental-logical inquiry into the conditions of possible knowledge aims as well at explicating the meaning of knowledge as such. Positivism cuts off this inquiry, which it conceives as having become meaningless in virtue of the fact of the modern sciences. Knowledge is implicitly defined by the achievement of the sciences. Hence, transcendental inquiry into the conditions of possible knowledge can be meaningfully pursued only in the form of methodological inquiry into the rules for the construction and corroboration of scientific theories.[10]

---

[7] Auguste Comte, *Introduction to Positive* Philosophy (Indianapolis, IN: Hackett Publishing, 1988), 30-1.
[8] Ibid., 12.
[9] Jürgen Habermas, *Knowledge and Human Interests* (Boston, MA: Beacon Press, 1972), 4.
[10] Ibid., 67.

Comte's claims in Volume One of the *Course on Positive Philosophy* that metaphysics is an 'absurd' fancy that adds nothing of value to our stock of knowledge and that "it is only by the thorough observation of facts that we can arrive at the knowledge of logical laws"[11] are clear signs that positivism's interest lies in replacing the robustly normative self-understanding of modern philosophy with a gaunt philosophy of science in which the meaning of 'knowledge' is reduced to "what the sciences do."[12]

The philosophy of the positive, moreover, claims the head of the philosophy of the subject since it replaces any inquiry into the faculties and capacities of the knowing subject—which, for the moderns, is the only way to secure the universal genesis of the knowledge relation—with a social-scientific reflection on the process of research itself. Habermas goes on to note that,

> The [positivist] philosophy of science renounces inquiry into the knowing subject. It orients itself directly toward the sciences, which are given as systems of propositions and procedures, that is, as a complex of rules according to which theories are constructed and corroborated. For an epistemology restricted to methodology, the subjects who proceed according to these rules lose their significance. Their deeds and destinies belong at best to the psychology of the empirical persons to whom the subjects of knowledge have been reduced. The latter have no import for the immanent elucidation of the cognitive process. The obverse of this restriction is the development through which logic and mathematics become independent, self-sufficient formal sciences, so that henceforth the problems of their foundations are no longer discussed in connection with the problem of knowledge.[13]

On my view, this usurpation of the place once occupied by the idealist theory of knowledge (with its metaphysics, absolute principles, and the primacy of consciousness) by the new positivism yields two important consequences. One is that the sciences become 'immunized' against the critical and phenomenological prescriptions of philosophy. Another is that epistemology, once the bastion of modern philosophy, is reduced to an empty objectivism that can say little of value about how knowledge is possible *in the first place*. In Comte's "ontology of the factual," where empirical facts and natural laws reign supreme, the one fact left unexplained is paradoxically the fact of knowledge itself, i.e., the fact that knowledge *is*. The positivist eruption, Habermas poignantly notes, "knocks the bottom out of [metaphysics]"[14] and, as a direct result, "the meaning of knowledge itself becomes irrational."[15]

The Role of Philosophical Meta-Languages

---

[11] Auguste Comte, *The Positive Philosophy of Auguste Comte; Volume 1*, translated by Harriet Martineau (London, UK: Batoche Books, 2000), 36.
[12] Habermas, *Knowledge and Human Interests,* 67.
[13] Ibid., 68.
[14] Ibid., 81.
[15] Ibid., 69.

While I take Habermas' account of the evolution of modern philosophy after Kant to be generally correct, I would like to controvert it on two specific points. First, as a point of clarification, it should be noted that the legislative function of modern epistemology is executed not simply through some all-purpose speculative operation, but through a highly specific philosophical maneuver: *the construction of a second-order meta-language that issues, through logico-transcendental analysis, the philosophical norms that regulate all first-order judgments about the sensible world*.

It is conformity or unconformity with these philosophical norms—which, according to Webb, always come "from above" [16] —that determines the firmity or infirmity of non-philosophical knowledge, especially scientific knowledge. If after Hegel, then, the theory of knowledge is annihilated in favor of a philosophy of science guided by positivist creed, this is because post-Hegelian developments make unthinkable what since Kant had been the linchpin to the philosopher's self-understanding—i.e., the enunciation of a normatively-charged meta-language upon which philosophy's unifying function and legislative resolve depend.

In Kant's critical philosophy, for example, the justifiability of science depends not on whether or not our representations conform to the objects posited by science, but—and I take this to be pivot-point of the Copernican Revolution—on whether the objects posited in scientific judgment conform to our way of representing them. In *Kant and the Philosophy of Science Today*, Michela Massimi explains: "from a Kantian perspective, we gain scientific knowledge of nature by subsuming appearances under the a priori concepts of the understanding. Our scientific knowledge of nature is then confined to phenomena intended as objects of experience, i.e. as conceptually-determined appearances."[17]

True, Kant brings about this upheaval in epistemology by distilling from the sciences (especially Newtonian mechanics) certain suppositions and then re-casting them as the necessary and universal conditions for the constitution of all possible objects of experience and, therefore, of experience itself. In this regard, one could say that Kant begins not by legislating philosophical truths *to* the sciences, but by presupposing the legitimacy of scientific judgments and then building an edifice *from* them. But this would be misleading since there is a real sense, already at work in the Kantian text, that the distilling operation that founds reason's architectonic is more than an audit of science's conceptual assets. It is, in fact, an anointment that sanctions and codifies as statutory that which, for the sciences, exists only by force of fact. Where science finds only facts, philosophy finds norms. And once found, these norms do not bend in light of new facts.

Once scientific suppositions are reinvented as philosophical norms, they acquire an extra-scientific aura that no science (not even the Newtonian physics that inspired them) can disengage. And should positive science ever contravene the norms laid out in his philosophical meta-language, Kant would most certainly say "then all the worse for science!" Indeed, he basically says as much in the "Preface" to the second edition of the *Critique of Pure Reason* (1781), where he argues that if human reason wants to be taught by nature, it must first be taught by the queen of

[16] David Webb, *Foucault's Archaeology: Science and Transformation* (Oxford, UK: Oxford University Press, 2013), 24.
[17] Michela Massimi, *Kant And Philosophy Of Science Today* (Cambridge: Cambridge University Press, 2008), 11.

the sciences. It learns from the latter how to approach nature with an armature of 'principles' that the queen herself provides and that nature itself cannot generate. "This," Kant writes, "is how natural science was first bought to the secure course of a science after groping about for so many centuries."[18]

The birth of a new historical consciousness in the nineteenth century complicates the Kantian theory of knowledge without, however, upsetting its most fundamental intent. Hegel, that imponderable German philosopher who claims to be historical consciousness in the flesh, worries that the norms of the Kantian theory of knowledge carry on their sleeve, all too visibly, the a-historical sensibilities of their eighteenth century origins and that, as a result, they need to be surpassed by a new set of norms that opens itself up to the provocations of historical time.

In *Kant and the Nineteenth Century,* W. T. Jones and Robert J. Fogelin argue that, for Hegel, the torpidity of Kant's "synoptic table" threatened to bring about the dissolution of the theory of knowledge because the categories laid out on it are incapable of change and thus inadaptable to the needs of each historical moment. Being indistinguishable from "the pigeon-holes into which the postman tosses each day's accumulation of letters and packages,"[19] the norms of the Kantian meta-language are at once too abstract (not concrete) and too concretized (intractable). Thus, even if these norms were to succeed, for the sake of argument, at justifying the rational status of scientific knowledge *at the level of its possibility*, they would fail to do so *at the level of its actuality*. Actual knowledge grows. It changes and expands with the ebb and flow of phenomenal and historical time, and any theory of knowledge that wants to hold on to its legislative rights must be able to accommodate, from within itself, this historicity. With its adamant inflexibility, Kant's theory, then, might succeed at denying knowledge "in order to make room for faith." But it fails horribly at the much more important task of making room for history. And this failure forecloses more than the relationship between philosophy and history; it also forecloses the very possibility upon which epistemology itself depends—the possibility of education.

In the first *Critique*, and this is Hegel's charge in the *Phenomenology of Spirit*, there is nothing new under the sun; what has been will be again, what has been done will be done again. And this means that there is no avenue in the critical philosophy for the education of consciousness since the latter will find nothing in the realm of experience other than what it itself has put into it. This suppression of the shock of the new robs experience of the right to surprise reason and renders the contents of experience constitutionally incapable of shaking up the formalism of *raisonnement.* Here, as Nietzsche notes in the "Preface" to the second edition of the *Gay Science*, there is nothing that can "leap forward" and "catch the spirit *in the act*."[20]

---

[18] Immanuel Kant, *Critique of Pure Reason,* translated by Paul Guyer and Allen Wood (Cambridge, MA: Cambridge University Press, 1999), 109.

[19] W. T. Jones, *Kant and the Nineteenth Century* (Fort Worth: Harcourt Brace Jovanovich, 1975), 115.

[20] Friedrich Nietzsche, *The Gay Science: With a Prelude in Rhymes and an Appendix of Songs*, translated by Walter Kaufman (London, UK: Vintage Books, 1974), 34.

Yet, in spite of its sweltering anti-Kantianism, the Hegelian attitude leaves the kernel of the Kantian project intact. Hegel agrees with Kant that philosophy's mission is to construct, guided by metaphysics, a normative meta-language to which all forms of knowledge, including scientific knowledge, are beholden. The only difference is that the subject of knowledge (now conceived as 'Spirit') is regarded as capable of changing the categories of thought through experience—which Kant cannot allow. In Hegel's work, the 'moments' in which the categories of experience are subjected to dialectical overturns themselves represent the philosophical norms or "rules for thinking"[21] over and against which scientific knowledge and scientific history are to be measured. Indeed, the very advancement of consciousness through all these moments appears to be a meta-norm or meta-directive that is depicted, in Hegel's writing, as the logical development of 'the Concept' [*das Begriff*]. The logic of experience outlined in the *Phenomenology of Spirit* (especially when read alongside 'the logic of logic' charted in the *Logic*) acts as the normative horizon within which scientific ideas, judgments, theories, and discoveries are to be fitted, framed, and evaluated. Particular sciences are 'rational' only to the extent that their concepts and attitude reflect this directive's mode of coming to terms with itself.

The still-Kantian legalism of the Hegelian standpoint is evident in Hegel's philosophy of nature. Posch states that Hegel's position concerning the acquisition of knowledge of nature is that only philosophy—here interpreted as the act of witnessing the dialectical movement of what is (i.e. 'the Concept')—can truly comprehend nature and legislate norms for knowledge.[22] In his 2010 "Introduction" to Hegel's *Philosophy of Nature*, M.J. Petry echoes this argument and contends that Hegel's *Naturphilosophie* bands together the descriptive methodology of phenomenological discourse and the normative edge of a catholic theory of knowledge in order to give a notional account of phenomena, and show that the history of science must be interpreted as the development of the Concept in its external as nature.[23] Thus, the normative meta-language that Kant articulates in terms of categories and congeals into the unity of a table, Hegel articulates in terms of moments (Terry Pinkard calls them "essential moments") and congeals into the unity of a teleology. In both cases, however, the modern desire to unify all possible knowledge under a normative discourse furnished by metaphysics rules the scene.

With Hegel's philosophy of the concept, the classical (i.e. modern) theory of knowledge makes its last stand. In *Reason in the Age of Science*, Georg-Hans Gadamer argues that

> Hegel was the very last to dare to defend in his thinking the proud claim of philosophy to be the framework and comprehensive totality for all possible human knowing. To the extent that this was attempted after Hegel, it occurred within the academic horizon of the schools on the

[21] Daniel O. Dahlstrom, *Philosophical Legacies: Essays on the Thought of Kant, Hegel, and Their Contemporaries* (Washington, D.C.: Catholic University of America Press, 2008), 107.

[22] Thomas Posch, "Hegel's criticism of Newton's physics: a reconsideration", in S. Houlgate, and S. Baur (ed.), *A Companion to Hegel* (United Kingdom: Blackwell Publishing, 2011).

[23] G.W.F. Hegel, *Philosophy of Nature: Volume I* (London: Routledge, 1970).

> part of professors of philosophy and was no longer the world historical reality it had been in the visage of professor Hegel of Berlin.[24]

After Hegel, as we have seen, epistemology is thrown into a deep crisis (thanks, in no small part, to the dissemination of Comte-style positivism). This crisis bars philosophy's normative motivation, effectively making obsolete the philosophical norms previously commanded by the thrust of logico-transcendental analysis (either as critique as in Kant's case or as phenomenological description as in Hegel's). This crisis, in simple terms, leaves nineteenth century thought in ruins.

It is quite telling that by the time the crisis recedes and a new world historical reality kicks into gear, the only "norms" recognized as legitimate are the non-philosophical norms of scientific procedure, i.e., those norms for the regulation of feedback-controlled action that reach theoretical climax in Karl Popper's *The Logic of Scientific Discovery* from 1934. All other norms, including the substantive norms of rationality furnished by epistemology, fall off from the philosopher's vocabulary. They are forgotten as remnants of a bygone stage of human thinking, as relics of that stage of human history that Comte would dismiss as 'the metaphysical stage.'

Now, I emphasize the role that second-order, normative, philosophical meta-languages play in the modern theory of knowledge because this way of framing "the death of German idealism" allows us to better understand the transition from nineteenth- to twentieth-century philosophy and, concomitantly, the rise of French historical epistemology. But before turning to this transition, I would like to add another corrective to the Habermasian account of how the liquidation of this theory came about.

According to Habermas, the crisis in the theory of knowledge was a solely intra-philosophical affair. "Philosophy was dislodged from [its] position by philosophy," he writes.[25] On this point, Habermas is mistaken. Surely, the historical transition from Kant to Hegel to Comte is affected by developments internal to philosophy, especially the rise of post-Hegelian modes of thought such as the materialism of Feuerbach, Marx and Engels, the *naturphilosophie* of Schelling, the philosophy of existence of Kierkegaard and Schopenhauer's philosophy of the will. Indeed, the positivism of Comte it itself—at least partially—a philosophical affair. But philosophers alone do not determine the future of philosophy. Extra-philosophical factors—some political, some anthropological, and some economic—act on philosophy as well. Sometimes they help form it. Sometimes they reform it. Sometimes, they deform it too. And the liquidation of the theory of knowledge in the late nineteenth century is an example of this. This liquidation does not come about by philosophical causes alone. Two extra-philosophical factors that contribute to it and are overlooked by Habermas' philio-sophical account are: the compartmentalization of knowledge brought about by the birth of the German university system; and the explosion, from the 1840s to the 1920s, of a series of scientific revolutions whose empirical consequences

[24] Hans-Georg Gadamer, *Reason in the Age of Science* (Cambridge: MIT Press, 1982), 24.
[25] Habermas, *Knowledge and Human Interests*, 4.

outstripped philosophical conceptions of the bounds of possible knowledge. Both of these events conspire with changes in philosophical outlook to barricade the dreams of classical epistemology and disengage its theory of knowledge.

The Sociological Scaffolding of the Crisis: The German University

> The crisis of idealism comes at the same time as a crisis in philosophy's pretensions to totality
> -Theodor Adorno, "The Actuality of Philosophy"[26]

In an entry for the third volume of Walter Ruegg's *History of the University in Europe*, Christophe Charle argues that the logic of professionalization and specialization that has come to dominate the academic system in the twentieth and twenty-first centuries is merely the protracted consequence of the Prussian education model promoted in the early-to-mid 1800s by the philosopher and state functionary Wilhelm von Humboldt, brother to the famous naturalist Alexander.[27] According to Humboldt, whose own philosophy of education was built on the Enlightenment philosophy of Friedrich Schleiermacher and the humanist ideal of self-formation [*Buildung*], universities should be sites for the cultivation of free and critical thought. They should be subjected only to the most minimal level of state intervention, and their structure should be modeled after the classical image of the tree of knowledge, with Aristotle's idea of the natural human desire for knowledge as the core from which specialized branches of scientific inquiry emanate. This approach is first embodied in the governance system and structure of the University of Berlin.

Although at the start of the nineteenth century Humboldt's approach is only popular within the German context and appears to be overshadowed outside this context by the Napoleonic model of education born out of the First French Republic, by the last third of the nineteenth century this model overtakes the French one as the preeminent standard for learning on the continent. Perhaps on account of its less militaristic and interventionist philosophy or perhaps because of its more liberal policies, by the middle of the nineteenth century the Humboldtian approach takes root in western Europe and abroad. Walter Rüegg writes:

> While, at the beginning of the century, Paris had been a Mecca for scholars and scientists from all over the world, from the 1830s the French Government sent representatives to Germany to enquire about progress in higher education. In the same way, young French people, as well as Americans later on, trained at German universities in the new scientific methods. From the end

[26] Theodor Adorno, "The Actuality of Philosophy," in Brian O'Connor (ed.), *The Adorno Reader* (Oxford: Blackwell, 2000), 25.

[27] Christophe Charle, "Patterns," in *A History of the University in Europe. Volume 3: Universities in the Nineteenth and Early Twentieth Centuries (1800–1945)* (Cambridge: Cambridge University Press, 2004).

> of the nineteenth century, the German model represented the modern university not only in Europe, but also in the United States and Japan.[28]

This shift from Napoleon's France to Friedrich Wilhelm IV's Prussia has significant consequences. It makes Berlin rather than Paris the epicenter of intellectual life in Europe. And it facilitates the spread of German philosophy and literature throughout the continent. In simple terms, it enables the Germanization of European thought. At the time, it ramps up cultural production within Germany, setting the stage for what historians of ideas call 'the Golden Age' of German philosophy and literature—the age of Novalis, Rilke, and Schopenhauer.

But this shift, which is as much about the Germanization of Europe as it is about the institutionalization of philosophy, also alters in radical ways the conditions under which philosophical thought can take place. For many philosophers, philosophy is the very consecration of human thought, its splendor emanating from the fact that, unlike the other sciences, it does not deal with gaining knowledge about particular objects, but is the science of knowledge itself [*Wissenschaftslehre*]. The German university, however, denies this self-image and subsumes philosophy under it as one of its many 'disciplines.' In doing this, the new institutional reality lacerates the philosopher's inflated sense of self-importance. With the march of the new university, what had once been the world-historical mission of the philosopher (or, perhaps more accurately, the self-understanding of the philosopher as a world-historical figure) turns into a practical occupation that takes place within a pre-established institutional infrastructure, under the auspices of the state. No longer the *daimonic* 'Wise Man' referenced by Hegel in *The Philosophy of Right* (1821)—i.e., no longer that prophetic silhouette that, perched at the zenith of history, stands proudly astride—the philosopher is now a mere employee, a worker whose most pressing duties are no longer to Spirit, Nature, or Being but to his institution, students, and research agenda. This is why Gadamer contends that "to the extent" that philosophers in the second half of the nineteenth century still take up the perennial philosophical questions, this is done from "within the academic horizon of the schools on the part of professors of philosophy." In 1895, the philosopher Friedrich Paulsen, voicing the common concern that the university system was assault on philosopher's very life activity, laments that at the close of the nineteenth century in Germany, the "age of absolute philosophy has been followed by an age of absolute unphilosophy."[29] In this sense, we may say against Heidegger that it is Hegel, rather than Nietzsche, who is 'the last metaphysician' since after his death one can no longer speak of metaphysicians, but only of professors of metaphysics.

But it is not only the philosopher's grandiose self-image that is put under pressure by the institutionalization of knowledge. The philosopher's vocation also suffers a blow. By separating inquiry into different fields, departments, disciplines, and areas of specialization, the university

---

[28] Walter Rüegg, *A History of the University in Europe, Vol. I: Universities in the Middle Ages* (Cambridge: Cambridge University Press, 1992), 6.

[29] Ibid., 453-4.

system promotes a sense of 'particularism' that calls into question philosophy's bid to unify all possible human knowledge inside a complete epistemological framework. By the late 1800s, the compartmentalization of knowledge has set in motion a process of epistemic balkanization that signals the fundamental dis-unity of knowledge and broadcasts the end of idealist epistemology. As new disciplines are born and as existing ones make more and more sophisticated claims to methodological and conceptual autonomy, questions begin to surface about whether knowledge is, in fact, a 'unity' (as philosophers historically assumed) and whether it can be 'unified' under a totalizing, genetic theory of the Kantian and Hegelian varieties. Even under the assumption that some form of unity remains within the reach of the thought process, it is unclear whether the philosopher is, so to speak, the right person for the job since the philosopher, qua professor, has become just one scientist among many. And how could the whole be unified from the standpoint of one of its parts? Mereology, previously philosophy's doing, becomes philosophy's undoing.

The Scientific Scaffolding of the Crisis: Science's Revolt

> The development of the sciences is as the same time their separation from philosophy and the establishment of their independence.
>
> -Martin Heidegger, "Time and Being"[30]

Of course, the politics of the university do not bring about the dethroning of epistemology by themselves. What historians call the 'second scientific revolution' is also a factor to consider. The second scientific revolution is a period of European history, spanning roughly from the 1830s to the 1920s, in which science acquires unparalleled cultural capital and becomes a central determinant of the human condition, affecting every major aspect of social life from agriculture, technology, and law all the way to religion, medicine, and communication. In *Science and Industry in the Nineteenth Century*, John Bernal shows that during this historical period science acquires so much social relevance that is becomes difficult, if not impossible, to "disentangle science from the social and economic factors with which it is entwined."[31] More than a 'part' of the social totality, science comes into its own as the dominant thread by which the whole social fabric hangs together as one.

More than anything else, however, what makes this epoch stand out as "the age of science"[32] is that it bears witness to a succession of scientific revolutions that shatter the classical frame of almost every branch of science, including mathematics, biology, chemistry, geology,

[30] Martin Heidegger, "Time and Being," in Gary Gutting (ed.), *Continental Philosophy Of Science* (John Wiley & Sons, 2008), 143.

[31] John D. Bernal, *Science and Industry in the Nineteenth Century* (Taylor & Francis, 2005), 3

[32] David Knight, *The Age of Science: The Scientific World-View in the Nineteenth Century* (Oxford, UK: Basil Blackwell, 1986).

physics, and even logic.[33] In 1830, for instance, Nikolai Lobachevsky sets the world of pure mathematics on fire by inventing non-Euclidean geometry through the axiomatic suspension of Euclid's famous 'fifth postulate.' A year later, with his discovery of electromagnetic induction, Michael Faraday sets the groundwork for the birth of the science of electromagnetism, which overturns the strictly mechanical view of the world that prevailed in physics since the time of Gassendi, Newton, and Galileo. Similar upheavals follow Darwin's articulation of the theory of evolution through natural selection, the birth of the science of probabilities (statistics), the creation of non-Aristotelian logics, the rise of post-Lavoisian chemistry, and the emergence of Louis Pasteur's germ theory of disease. Much like the university system's rhetoric of specialization and research that made them possible, these revolutions destabilize philosophy from without and call into question one of the central tenets of modern epistemology: the idea that philosophy must adopt a legislative attitude toward science.

The scientific discoveries just mention essentially bulldoze over many of the epistemological norms decreed by philosophical meta-languages. In direct defiance of philosophy's self-appointed legislative authority, they disfigure philosophical conceptions of 'time,' 'space,' 'substance,' and 'causality'[34] and show speculative thought to be incapable of accommodating the latest achievements of the sciences. Kant's contention in the 'Transcendental Aesthetic' that time and space are distinct forms of intuition, for instance, breaks down in the face of quantum physics and Einstein's theory of special relativity, just as the necessity of his categories (especially the category of substance) degenerates under the pressure of new chemical knowledge.[35] Similarly, Hegel's account of the ideal progression of mind in the *Phenomenology* is out of joint with the actual historical development of science and his understanding of scientific concepts such as 'number' and 'matter' in the *Logic* puts his philosophy at odds with what the Neo-Kantian philosopher Ernst Cassirer calls "the immanent progress of the sciences."[36] In "The Heritage of Hegel," Gadamer argues that, much like the Kantian architectonic, the Hegelian dialectic, amenable as it was to the idea of change, "had little chance of escaping the resistance of historical research."[37]

And it is not only particular philosophical norms that are breached by the steady advance of positive knowledge. It is the whole character of philosophy that is put on trial. The upheavals in scientific knowledge that appear during the age of science instigate a wholesale Copernican revolution in thought comparable to those of Copernicus in astronomy and Kant in epistemology.

---

[33] Bernal, *Science and Industry in the Nineteenth Century*, 5.

[34] See Werner Heisenberg's *Encounters With Einstein: And Other Essays on People, Places, and Particles* (Princeton, New Jersey: Princeton University Press, 1983). See also Ernst Cassirer's *Substance and Function & Einstein's Theory of Relativity* (New York: Dover Publications, 2004).

[35] See Gaston Bachelard's *The Philosophy of No: A Philosophy of the New Scientific Mind* (New York, New York: Orion Press, 1968).

[36] Ernst Cassirer, *The Philosophy Of Symbolic Forms: The Phenomenology Of Knowledge; Vol. 3* (Yale University Press, 1957), 20.

[37] Gadamer, *Reason in the Age of Science*, 39.

In the sixteenth century, Copernicus showed that it is not the heavenly bodies that revolve around the spectator but the spectator who revolves around the stars. Two centuries later, the epistemologist from Königsberg tried to show that it is not our intuition that revolves around objects but objects that revolve around our intuition. In a similar way, what the second scientific revolution of the nineteenth century reveals is that it is not scientific progress that revolves around philosophical norms but philosophical norms that must revolve around the fact of scientific progress. Epistemological normativity is a byproduct of *scientific* and not *philosophical* reason. And this means that philosophers have to make their *de jure* judgments about the nature and limits of knowledge fit the *de facto* advancements of scientific discourse and justify themselves before the bar of science, rather than the other way around.

By the time the nineteenth century comes to a close, Gadamer writes, philosophy has lost its status as the source of legitimation and "has come to need legitimation in the face of science in a way that had never been true before."[38] With this emancipation of science from philosophy, the latter loses its legislative identity and abandons the project ascribed to it by the theory of knowledge—the project of unifying all possible knowledge through the erection of a normative meta-language. Philosophy then flees from an epistemology firmly rooted in idealism and rushes headfirst into a philosophy of science acquiescent to the anti-metaphysical ideology of positivism.

We see, then, that Habermas is right in thinking that modern epistemology meets its end after Hegel's death in 1831 and in asserting that this event is precipitated by the rise of positivism in France. But he is off-target in attributing this event to philosophical causes alone. Yes, modern epistemology runs into a wall with positive philosophy. But this is only one of the factors that spawn the crisis in the theory of knowledge and cause the siege of epistemology by the philosophy of science at the start of the twentieth century. But the dis-unification of knowledge produced by the structure of the German university and the onslaught of scientific revolutions that, from the 1840s to the 1920s, flout the most basic categories of traditional epistemology and that in course of a few decades turn topsy-turvy philosophy's place in the world and leave the philosopher on unfamiliar terrain—these factors also contribute to this impasse. They impact the self-image of philosophy precisely at the moment it gears up to transition from the nineteenth to the twentieth century.

Philosophy's Entry into the Twentieth Century—An Infelicitous Start

In my interpretation, what Köhnke calls "the death of German idealism"[39] is caused by three equiprimordial factors: the birth of Comtean positivism, the spread throughout the European continent of the German university model of education, and the eruption of the second scientific revolution. These factors, which are intricately inter-connected, problematize what Theodor Adorno calls "philosophy's pretentions to totality" and bring about what Husserl calls the

[38] Ibid., 6.

[39] See Klaus Köhnke's *The Rise of Neo-Kantianism: German Academic Philosophy Between Idealism and Positivism* (Cambridge, UK: Cambridge University Press, 1991).

"decapitation"[40] of the philosophical concept of knowledge. While it is more accurate to think of this event as the 'death of the philosophical norm' (or the 'death of the concept'), what matters is that this historical event be grasped in its full significance as the moment philosophy relinquishes its post as the source of normativity and clears the way for the positive sciences to ascend to a position of self-determination. What matters, in other words, is that the death of German idealism be recognized as the site of a Second Enlightenment—the epoch in which science releases itself from its (partially) self-incurred philosophical tutelage and gives itself the norm.

Unfortunately, while this Second Enlightenment infuses science with an intoxicating feeling of freedom and boundlessness, it leaves philosophy in an abject state of privation in which all the latter can do is ponder the infelicitous question of its own existence. The almost incredible success of the sciences—the rapidity of their growth, the verifiability of their results, and the success of their methods—is so significant that, as Gutting points out, "the question gradually [arises] of what, if anything, there remain[s] for philosophy to do."[41] If it cannot unify or legislate, what can philosophy do? How will it justify itself? In the late 1800s, and while still processing the fact of its own abrogation, philosophy has no yet developed the theoretical resources needed to think through the question of its own justification, of its *raison d'être*. Dejected and crestfallen, all it can do when called upon to defend its status as a discipline is lower its previously willful gaze and watch helplessly as the spectacle of history washes over the memories of its once illustrious past.

But if in acknowledging science's capacity for epistemic self-rule this second Enlightenment brings about the crisis of idealism that strips philosophy of its legislative attitude, in exposing the profoundly historical nature of scientific rationality it brings about an even more acute crisis *in positivism* that denies it (positivism, that is) the internal consistency universal character it claims for itself. What the many scientific discoveries and revolutions of the late nineteenth and early twentieth centuries reveal is that the research process occasions the genesis of its own normative concepts at the same time as it catalyzes the conditions for their transformation. What science enacts, science can also revoke.

This raises absorbing questions about how the normativity of scientific judgment and the history of science interact. How can scientific "truths" be normative and historicist at the same time? How can the norms science gives itself possess genuine normative content if science overturns them in sudden, revolutionary jolts? This is the 'crisis in the theory of science' that, in my view, follows the 'crisis in the theory of knowledge.' Whereas the latter, as we have seen, revolvs around the question of knowledge and its subjective genesis, the latter revolves around the question of normativity and its place in scientific history. And while the latter plateaues into an objectivism that gauges knowledge solely by the achievements of the sciences (i.e. positivism),

[40] See Husserl's *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy* (Northwestern University Press, 1970).
[41] Gary Gutting, *Continental Philosophy Of Science* (John Wiley & Sons, 2008), 1.

the former demands that philosophy re-consider and refine its understanding of science in light of the tension, internal to science itself, between normativity and history.

Although the positivist school effectively solves the crisis in the theory of knowledge by aborting metaphysical thinking and broadcasting to the wind the triumph of 'fact' over 'speculation,' the two facts this school leaves unexplained are perhaps the two that matter most: (1) the fact that science exhibits the characteristics of a normative dialogue and (2) the fact that this dialogue at times succumbs to revolutionary and non-linear change. Positivism cannot explain either where the normativity of science comes from or why it repeatedly reinvents itself in time.

The end of the long nineteenth century, then, brings about a new situation that transforms philosophy considerably, a situation in which philosophy no longer stands at the pinnacle of human history surveying the totality of human life from that impossible perspective that Plato calls "a place beyond heaven."[42] In this new situation, philosophy is 'pulled down' from the lofty heights of its idealist self-understanding (where it exists as a catholic theory of all possible knowledge) and into the trenches of social life (where it can only exist as one discipline among many). And in this new world—which is *our* world—the surest sign that an entire age of philosophy has come to pass is the fact that philosophy's most pressing concerns have shifted; that the problems that once served as its core points of reference have given way to a new set of problems that more accurately reflect its new social and historical conditions of actuality.

If the two fundamental questions that vex philosophical conscience in the modern period are "What is knowledge?" and "How is it possible?," the two questions that completely engulf it at the end of the nineteenth century are "What is scientific rationality?" and "What is philosophy's relationship to it?" In their proper form, these problems can be articulated as follows:

(1) *The question of scientific rationality*: How can scientific rationality be simultaneously normative and historical, as recent developments indicate? And,
(2) *The question of philosophy's relationship to it*: What should philosophy's duties to, and expectations from, the positive sciences be?

It is through these two questions that philosophy first enters the twentieth century. It is also through them that it becomes aware of the need to re-invent itself. These two questions, therefore, constitute the primal scene from which all philosophical thought in the 20th century is born. Again, my suspicion is that these questions—even more than questions about Kant's enlightenment or Descartes's cogito—shape the philosophical, historical and epistemological content of French historical epistemology.

[42] Plato, "Phaedrus," in *Plato: Complete Works* (Indianapolis: Hackett Publishing Co., 1997), 247c.

In the first half of the twentieth century there are major philosophical projects that set out to address the enigma of how *the normative* and *the historical* collide in *the scientific* and promise philosophy a shot at a new beginning after Comte. Among others, these include:

- Neo-Kantianism (especially the so-called "Marburg School")
- Phenomenology (Husserl)
- Logical Positivism (Carnap)
- Logical Empiricism (Popper)
- Frankfurt Critical Theory (Adorno, Horkheimer, Marcuse)
- French Historical Epistemology (Bachelard, Canguilhem, Foucault)

Although certainly not exhaustive of the philosophical arena at the turn of the century, these schools represent different rejoinders to philosophy's abject condition at the end of the age of science; and each seeks to overcome, in its own way and via different methods, the crisis in the theory of science that constitutes the long century's true philosophical legacy (at least in the domain of epistemology).

Sadly, the first five of these philosophical behemoths fail to resolve the crisis that provokes and motivates them. Instead of reconciling the unmistakable normativity of scientific judgments and the undeniable historicity of scientific paradigms, which vexes philosophical thinking after the Great War, they invent new futures for philosophy by repressing one or another aspect of this controversy. Some, such as logical positivism, repress the historicity of science for the sake of buttressing its normative claims. Others, such as Frankfurt Critical Theory, repress its normativity so as to accommodate its historicity. Others still, neo-Kantianism and phenomenology in particular, succeed at the formidable task of repressing both. At any rate, all these projects prove incapable of "processing" the trauma of their common primal scene. They are overwhelmed before it, and splintered up by it too.

Only the last school of thought, French historical epistemology, I argue, gives us a plausible account of scientific rationality that does not either (a) vitiate or "reduce" the rationality immanent to science or (b) sacrifice its normative or historical content. In the following section I give a brief account of the theoretical strategies historical epistemologists deploy when thinking about the science-history-normativity triad and use to shed light on how these terms triangulate. These theoretical strategies will clarify why historical epistemology must be read as direct response to the two crises of the late nineteenth century—the crisis in the idealist theory of knowledge and the crisis in the positivist theory of science—and not simply as a re-enactment of eighteenth century debates about the meaning of Enlightenment rationality (as Foucault implies)[43] or seventeenth century debates about the status of subjectivity (as Badiou contends).[44]

[43] Michel Foucault, "Introduction," in Georges Canguilhem, *The Normal and the Pathological* (New York: Zone Books, 1999), 7.

[44] Alain Badiou, *The Adventure of French Philosophy* (London and New York: Verso, 2012), lii-liii.

French Historical Epistemology And The Amputation Of The *A Priori* Theory Of Knowledge

There are three main theoretical strategies members of the French school of epistemology employ to invent a new future for epistemology post-1910.

First, they abandon the *a priori* theory of knowledge that defines epistemology from Kant to Hegel, favoring instead *a posteriori* reflections into the history and philosophy of science. And although they refuse to view epistemic concepts or norms as petrified terms in a transcendental table of categories or as fixed moments in an ideal teleological unfolding, they nonetheless retain the concept of 'the concept' that once gave German idealism normative traction. They accept, in other words, that science is a normative activity. It is just that they view the norms that constitute it as flexible principles that evolve and change over historical time.

Second, they cherish rather than mourn the effects of the second scientific revolution and use the fact of science's emancipation from philosophy to precipitate the reconfiguration of philosophy's libidinal economy. That is to say, they demand that the set of impulses, dreams, desires, and fantasies that traditionally gave shape to philosophy's imaginary be replaced with new motivations and ambitions that no longer make the justification of philosophy as a discipline contingent upon its ability to dominate and rule all other disciplines.

And third, they 're-set' the scientific clock. By this I do not mean that they erase scientific history or make scientific time turn back. I simply mean that they shift the central function of scientific rationality—i.e., *norm-generation* or *concept-formation*—from one temporal register to another, from the sphere of lived time (the time of subjective experience) to the sphere of historical time (the time of scientific history). In direct defiance of the philosophy of subjectivity that was founded by Descartes and then re-founded Hegel and Husserl, historical epistemologists assert that scientific concepts are not formed, intuited, or constituted by subjects. They are constituted *in* history by the objective movement of scientific work. They belong to an autonomous temporality that is, by and large, void of subjective or experiential content.

Via these strategies—the *a posteriori* retention of the concept, the celebration of science's emancipation, and the shift of the temporality of conceptuality—, French epistemologists bring about two important revisions of epistemological inquiry. They limit epistemological investigation to the study of science. (This is why, in France, the term 'epistemology' [*l'épistémologie*] refers not to the study of subjective intentions, motivation, and beliefs but to the critical practice of the history and philosophy of science).[45]And they limit the study of science, in

[45] In *Dictionary of Untranslatables: A Philosophical Lexicon*, Barbara Cassin, Emily Apter, Lacques Lezra and Michael Wood include the French *épistémologie* in their catalogue of philosophical words that carry fundamentally different meanings "in German, English and French." In German and English, epistemology is equivalent with the theory of knowledge "as Kant defined and founded it"—i.e., as an investigation into subjectivity. In France, however, it means "a study of the general laws of thought *with reference to the sciences*." Hence, in 1907 Émile Meyerson can casually say, without the need for a digression, that his book *Identité et réalité* belongs "to the domain of the philosophy of science or epistemology, to use a more or less appropriate term that

turn, to the interrogation of the evolutions and transformations of its concepts over historical time. Still, looking at each of three strategies that collaborate to bring about these revisions should help us understand how, and in what sense, historical epistemologists built a theoretical enterprise atop the ruins of the nineteenth. Let us begin with the first.

Like the neo-Kantians, phenomenologists, and logical positivists, historical epistemologists retain the notion of the *a priori* from the German idealists. They agree that before an epistemic agent can be "constituted in rationality," as Gaston Bachelard argues in *Le rationalisme appliqué*, he or she must accede to various "principles of necessity" that give scientific experience its "apodictic character."[46] In the works of Bachelard, Canguilhem, and Foucault, however, these principles appear not as subjective categories (neo-Kantianism), structures of lived experience (phenomenology), or relations of pure logical necessity (logical positivism), but rather as *concepts* that rule scientific judgment and condition scientific experience from within.

Examples of concepts are present in virtually every major work of historical epistemology. In *The Order of Things*, for instance, Foucault talks about how the concepts of *structure* and *character* defined the discursive field of natural science in the eighteen and nineteenth centuries,[47] while in *The Normal and the Pathological* Canguilhem describes how the concepts of *normality* and *pathology* transfixed the epistemological possibilities of nineteenth century medical reason.[48] In a similar fashion, Bachelard presents the concepts of *resistance, blending,* and *synthesis* as the leading terms that founded the epistemology of post-Lavoisian chemistry in *Le matérialisme rationnel*.[49] For his part, Cavaillès focuses on some of the concepts that lie at the heart of mathematics—concepts such as *necessity*, *infinity*, *set*, *magnitude*, *proof*, and *probability*.[50] In each case, these thinkers warn us against confusing these concepts with subjective 'ideas,' 'intuitions,' or 'beliefs.' They also warn us against equating them with 'facts.' These concepts are not subjective terms. And neither are they empirical observations. They are legislative and normative in nature and exist, as Bachelard makes clear, "above facts."[51]

These concepts may be defined as non-subjectively constituted terms that carry epistemological (and not just logical) content, meaning that they are irreducible to the operations of classical and postclassical logics. Indeed, they are historico-normative schemas, values, or norms that exceed *the subject of logic* (logicism) as well as *the logic of the Subject* (subjectivism). Because they are not empirical facts, these concepts help French epistemologists evade the

---

is becoming widely used" (See Barbara Cassin et al., "*Épistémologie,"* in *Dictionary of Untranslatables: A Philosophical Lexicon* (Princeton, NJ: Princeton University Press, 2014), 270).

[46] Gaston Bachelard, *Le rationalisme appliqué* (Paris: Presses Universitaires de France, 1966), 25.

[47] Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1994).

[48] See Georges Canguilhem's *The Normal and the Pathological* (New York, New York: Zone Books, 1989).

[49] See Gaston Bachelard's *Le matérialisme rationnel* (Paris, France: Presses Universitaires de France, 1963).

[50] See Jean Cavaillès's "On the Logic and Theory of Science," in Joseph Kockelmans and Theodore Kisiel (eds.), *Phenomenology and the Natural Sciences; Studies in Phenomenology and Existential Philosophy* (Evanston, IL: Northwestern University Press, 1986).

[51] Bachelard, *Le rationalisme appliqué*, 25.

glorification of the factual that defines the positive philosophy. And because they are not merely cultural facts (on account of their normative and epistemological content), they also help them take a stand against those who seek to reduce the rationality and normativity of the research process to social and political forces, such as Frankfurt critical theorists and the sociologists of scientific knowledge. Time and again, they refer to these concepts as 'the *a priori*' of (scientific) knowledge.

Where historical epistemologists end their alliance with other early-twentieth century thinkers who also incorporate the notion of the *a priori* into their theories of knowledge is that they adopt a curious interpretation of *apriority*. They do not require, and indeed forbid, that *a priori* be conceived as a-temporal or a-historical. For them, the *a priori* concepts that govern the production scientific discourse is not (or, at least, not primarily) a 'synthetic' or 'formal' *a priori*. it is a 'historical' ones, too—as in Foucault's "historical *a priori.*"[52] The latter cannot be subsumed under transcendental rules of subjective synthesis or be treated merely as a property of analytic statements. Yes, this historical *a priori* ensures the apodicticity of scientific knowledge and determines what it means to know [*savoir*]. But it is not an eternal norm (or norms) of reason existing is some supra-human realm.

In *Historical Ontology*, Ian Hacking explains the historical nature of the French *a priori* by saying that it is as inexorable as Kant's synthetic *a priori* "in its time and place," but retains a contingent character in relation to other historical life-worlds and time-periods.[53] In "Foucault and the French Tradition of Historical Epistemology," Peter Dews makes a similar claim. He argues that, due to their historicist reading of apriority, Bachelard and Canguilhem have to fight an epistemological battle on two philosophical fronts at once. To one side, they fight against eternalist interpretations of the *a priori* conditions of rational knowledge. To the other, they fight against relativistic theories of scientific history that would rather do without the *a priori* altogether. As such, they struggle against certain philosophies that talk about 'pure reason' and 'pure method' as much as against others that claim that, in the absence of purity, "the enterprise of science as a whole can [or must] be explained by irrational determinants."[54]

If this critical and historicist retention of the *a priori* (conceived as "concept") is the first weapon of French epistemology, the celebration of the after-effects of what I have termed 'the second Enlightenment' is its second one. Following Dews' suggestion, I hold that if French epistemologists partake in this taxing battle at both ends of the philosophical spectrum, this because they value not only the normativity but also the autonomy of what Bachelard dubs "the scientific city,"[55] which represents the "effectuation of a project which is internally normed, but

[52] See Elisabetta Basso's "On Historicity and Transcendentality Again; Foucault's Trajectory from Existential Psychiatry to Historical Epistemology," *Foucault Studies,* vol. 14 (2012), 154-78.

[53] Ian Hacking, *Historical Ontology* (Cambridge: Harvard University Press, 2002), 5.

[54] Peter Dews, "Foucault and the French tradition of historical epistemology," *History of European Ideas*, vol. 14 (1992), 357.

[55] See Gaston Bachelard's *Épistémologie: Textes choisis*, edited by Dominique Lecourt (Paris, FR: PUF, 1977).

traversed by accidents, delayed or side-tracked by obstacles, interrupted by crises, that is to say, moments of judgment and of truth."[56]

Recall that in the late nineteenth century a handful of scientific revolutions shifted the center of legislative gravity from philosophy to science and made it clear that the first-order language of science does not passively wait around for a second-order philosophical meta-language to normalize it. These revolutions taught us that first-order scientific language "creates its own norms"[57] without waiting for philosophy's Godot.[58] Some philosophical schools of thought, such as phenomenology, made their claim to fame in the early twentieth century precisely by trying to shift this center of gravity *back* to philosophy; by trying to return to philosophy the power to norm all possible knowledge. Historical epistemology, by contrast, makes its claim to fame by taking precisely the opposite route—by celebrating the fact that science has released itself from the yoke of philosophy. In a sense, the first step taken by French philosophers of the concept is issuing a *proclamation of epistemic emancipation* according to which the norms or concepts that make of epistemology a worthwhile vocation are the accomplishment of science, not philosophy. Science authors its own norms. And this capacity for self-rule that philosophy ditch its historical will-to-master; that it face up to the reality that it can no longer role-play as the "queen" of the sciences or as the "super-ego"[59] of the scientific mind. Why? Simply because science has become autonomous and developed a super-ego ideal fashioned after its own image.[60]

This celebration of science's escape from un-freedom prompts a sweeping re-description of the philosopher's job. We have seen that, from Kant to Hegel, the philosopher's job is to attend to a present state of scientific knowledge, scrutinize it with the tools of logico-transcendental analysis, and then craft an ideal and normative meta-language to normalize and justify it. The presuppositions here being, of course, (a) that there exist universal norms of rational thought, (b) that these norms are operative in the exercise of scientific judgment and (c) that only the philosopher, with the aid of philosophy's methods, can grab a hold of them. But when the job of norming scientific knowledge starts being done 'in-house' by science itself, the philosopher finds herself without a post. What is she to do?

From the standpoint of historical epistemology, the philosopher's options are limited. In fact, they are limited to only one option: the philosopher mutate from an idealist to a non-idealist (read: historical) epistemologist. In this capacity, the philosopher can still be said to 'justify' scientific knowledge but not by legislating into existence, as if by *fiat*, norms to which science

---

[56] Dews, "Foucault and the French tradition of historical epistemology," 58.

[57] Dominique Lecourt, *Marxism and Epistemology: Bachelard, Canguilhem and Foucault* (London: NLB, 1975), 82.

[58] Foucault, *Archaeology of Knowledge*, 46; Lecourt, *Marxism and Epistemology*, 82, 165.

[59] Bachelard, *Le rationalisme appliqué*.

[60] In *MR*, Bachelard speaks of a scientific will to power [*volonté de puissance*] that differs from the philosophical will to master and that turns the scientist not into a despotic monster that controls what is, but into a "truthful magician" or "positive demon" (a play on Descartes's evil genius) that creates new truths. See Bachelard's *Le matérialisme rationnel* (Paris, France: Presses Universitaires de France, 1963).

must acquiesce. Rather, he or she "justifies" scientific reason by showing contemporary science to be a rational consequent of its own historical past, by articulating genealogies of systems of knowledge. Because neither logical nor transcendental analysis can return philosophy to the throne, philosophy must adapt to its post-patrician conditions of existence. And the sole adaptation at its disposal is the one already identified by Nietzsche: "historical philosophizing." In this type of philosophizing, there still is room for the existence *a priori*. But the *a priori* is not something that philosophy 'founds' or 'generates.' It is something it 'maps.' Philosophy looks for the *a priori* (in the form of the dispersion of concepts) in the historical landscapes of scientific rationality. And, when it finds it, it maps it. But philosophy, by itself, cannot beget it. It can only receive it from its newly emancipated outside.

Curiously, the commemoration of the newly found epistemic freedom of the sciences does more than steer the epistemologist in the direction of a genealogical method. In severing any and all ties between it and the theory of knowledge, it also revolutionizes the very meaning of "epistemology." Let us stress that French epistemologists do not simply maintain that epistemology must become more sensitive to scientific knowledge. Theirs is a much more drastic position. They hold that scientific knowledge must become epistemology's sole possibility. Here, as the French philosopher François Regnault has observed, 'epistemology' is defined "as relative to science or to the sciences."[61] It ceases to be coextensive with an *a priori* theory of knowledge in the tradition of Kant and Hegel and becomes an *a posteriori* reflection on the history of the sciences in the tradition of Comte and Brunschvicg.

The Spanish philosopher Francisco Jarauta contends in *La filosofía y su otro (Bachelard, Cavaillès, Canguilhem, Foucault)* that the penetrating analyses of the history of the sciences that emanate from the Sorbonne from the 1930s to 1970s share one and only one absolute commonality: they are all grounded not on philosophy itself but on 'the Other of philosophy,' which is to say, the history of the sciences. Drawing a comparison, one could say that in the same way that Kant appeals to practical reason as the norm-testing court of appeal for questions of morality, French epistemologists appeal to the history of the sciences as the norm-testing court of appeal for questions of epistemology. In the depths of this 'Other,' the philosophy of the concept finds its sustenance, life-source, and point of departure.

All of this to say that French historical epistemology is born on the eve of the first World War as the refutation of the theory of knowledge. It negates the latter's de-coupling of *a priority* and historicity and rejects its claim that philosophers should be in the business of articulating a normative meta-language that stands 'over' or 'under' science either as its 'queen' or as its 'ground.' And, to be clear, the idea of 'amputation' is more than just a manner of speaking since, as Merleau-Ponty has shown in relation to embodied subjects, the amputation of a limb results in more than just the deprivation or silencing of a certain capacity. In a powerful sense, an amputation creates a new sense of lived time in the subject who undergoes it. In a similar fashion,

[61] Peter Hallward and Knox Peden, *Concept and Form: Volume 1, Selections from the Cahiers pour l'analyse* (Paris, FR: Verso, 2012), 119.

the amputation of the theory of knowledge does more than simply deny philosophy access to a particular way of thinking about science. This amputation readjusts the temporality of epistemology and gives birth to a new way of thinking about the *temporality* in which scientific concepts are constituted. This re-adjustment of the temporality of knowledge is the third maneuver that defines French epistemology.

The most important function of the classical theory of knowledge is to explain the origins of knowledge. This theory sets for itself the task of finding a temporal register *into which* concepts can be born, that is to say, a temporal register that houses the process or activity of concept-generation. In the modernity that stretched from Kant to Hegel, the temporal register that performs this function is the temporality of consciousness. What makes possible the formation and appearance of concepts is the temporality of the 'I,' independently of whether this is conceived as a transcendental unity of apperception (Kant), the absolute ground of all that is (Fichte), or self-identity in otherness (Hegel). But historical epistemologists reject the 'I'—or 'consciousness'—as a founding principle of epistemology. As far as they are concerned, the 'I' represents a vestige of the classical theory of knowledge that any critical epistemology would do well to do without. This raises a simple problem. If *the* temporality of consciousness is no longer admitted as an axiom of epistemology, what temporal register will substitute it as the origin of concept-formation?

French epistemologists give an express answer: the temporality of the history of the sciences. This temporal domain is nothing like the subjective time that Kant presents as a 'pure form of intuition' or the stream of appearances that Husserl dubs 'the internal time of consciousness.' This is a temporality without an Ego or Subject. As such, we may say that for Cavaillès, Bachelard, Canguilhem, and Foucault, concept-formation rides the crest of scientific history such that it is the history of science rather than the time of subjective experience that, properly speaking, concepts are *born into*. Epistemology's first order of business, therefore, must be to time-travel from the subjective time of the Cogito to the non-subjective time of the history of science. If it succeeds at this task, epistemology becomes worthy of its name. If it does not, epistemology fails at being epistemological.

Concluding Remarks

We know that in Paris, following the end of WWI, epistemology was subjected to a series of *theoretical dislodgments*: it was divorced from the method of *a priori* theorizing that once defined 'great' philosophy; its conceptual structure was cracked open by the historicist provocations of post-Kantian philosophy; its legislative spirit was defied by science; and it was, in a very real sense, institutionalized. Needless to say, these dislodgements—which, together, constitute historical epistemology's *historical conditions of emergence*—pelted and bruised philosophy's ego and controverted its self-understanding as the source of epistemic normativity *par excellence*. But they also did something else: they brought about the historical and theoretical conditions that made it possible for philosophy to project itself onto the European context in a radically new way. They allowed philosophy to re-invent itself and step into the currents of twentieth century life no

longer as an idealist and universal theory of knowledge but rather as a historically sensitive and socially aware 'philosophy of the concept,' as a 'historical epistemology.' What our analysis here indicates is that this metamorphosis was not exclusively the work of philosophy's internal dialectic. It was the product of a dense and saturated background in which philosophical and extra-philosophical forces were at play (e.g., the advancement of science, the march of history, the rise of the university structure).

It cannot be disputed that many experienced the collapse of normative epistemology in the nineteenth century as evidence of the breakdown of 'real' epistemology, i.e., as a sign of the corruption of philosophy by its outside. But it cannot be denied that some also experienced this transition in a different way, as the opening up of philosophy's horizon, as a valuable opportunity for the simultaneous overhaul of moth-eaten philosophical ambitions and the renovation of epistemology's critical project. For those in the second category, the ruin of one century bore lovely fruit in the next. As Nietzsche candidly put it in *The Gay Science*: "the times of corruption are those when the apples fall from the tree." And, in the late nineteenth, many an apple did fall from philosophy's normative tree. Sign of corruption? Perhaps! But "corruption," as Nietzsche also says, is all-too-frequently "merely a nasty word for the autumn of a people."[62]

David M. Peña-Guzmán
Postdoctoral Fellow
Centre for Evolutionary Ecology and Ethical Conservation
Laurentian University, ON
davidmpena@gmail.com

[62] Nietzsche, *The Gay Science*, 98.